IN THE CLAIMS:

1.-9. (Cancelled).

10. (Currently Amended) A fuel cell system, comprising:

1) at least one fuel cell which has

a) an anode compartment,

b) a cathode compartment, and

c) a proton-conducting membrane which separates said anode compartment from said cathode compartment and is capable of allowing water to pass;

2) a cathode circuit in which said cathode compartment is disposed, said cathode circuit further including a cathode feeder for delivering oxygen-containing gas to said cathode compartment; and

3) an anode circuit in which said anode compartment is disposed, said anode circuit further including an anode offtake connected to a gas separator, and an anode feeder for delivering a liquid coolant/fuel mixture to said

anode compartment, whereby cooling in the anode circuit is effected by evaporation of liquid coolant that passes through said membrane from the anode compartment into the cathode compartment, with no additional heat exchanger being provided in said anode circuit; and

4) means for setting and maintaining a desired operating temperature in said fuel cell by adjusting at least one of pressure in said cathode compartment, and a rate of delivery of the liquid coolant/fuel mixture to said anode compartment.

11. (Original) The fuel cell system of Claim 10, further comprising a expander unit disposed in said cathode circuit, wherein water vapour generated in the cathode compartment is delivered to said expander unit.

12. (Original) The fuel cell system of Claim 10, further comprising a compressor unit disposed in said cathode feeder.

13. (Original) The fuel cell system of Claim 11, further comprising a compressor unit disposed in said cathode feeder.

14. (Original) The fuel cell system of Claim 13, further comprising a supercharger intercooler, a cooler, and at least one water separator for water recovery, wherein said supercharger intercooler is disposed downstream of the

compressor unit, and said cooler and at least one water separator are disposed downstream of the expander unit.

15. (Original) The fuel cell system of Claim 10, further comprising a holding and purification tank disposed in said anode circuit.

16. (Original) The fuel cell system of Claim 15, further comprising an anode offtake and a subsidiary branch of the anode offtake, wherein said holding and purification tank is disposed in said subsidiary branch upstream of said gas separator.

17. (Original) The fuel cell system of Claim 14, further comprising a feedback line, wherein recycling of recovered water from the at least one water separator into the anode circuit is provided via said feedback line.

18.-20. (Cancelled)

21. (Currently Amended) A method of operating a fuel cell system having at least one fuel cell which includes an anode compartment and a cathode compartment which are separated from one another by a proton-conducting membrane, and an anode feeder for delivering a liquid coolant/fuel mixture to the anode compartment, comprising:

~~setting the operating temperature of the fuel cell by controlling one of pressure of the cathode compartment and volume flow of the coolant/fuel mixture into the anode compartment;~~

passing ~~water~~ coolant through the proton-conducting membrane from the anode compartment into the cathode compartment; and

~~cooling~~ evaporating the coolant~~/fuel mixture~~ in the anode compartment; and.

adjusting temperature in said at least one fuel cell to a desired value by varying a rate at which said coolant evaporates in said cathode compartment;

wherein said varying of said rate at which coolant evaporates in said cathode compartment is performed by adjusting at least one of a flow rate of the liquid coolant/fuel mixture, and pressure in said cathode compartment.

22. (Original) The method of claim 21, wherein the operating temperature is between 90 and 110°C.

23. (Currently Amended) A method of controlling an operating temperature of a fuel cell system having at least one fuel cell that includes an anode compartment and a cathode compartment which are separated from one

another by a proton-conducting membrane, and an anode feeder for delivering a liquid coolant/fuel mixture to the anode compartment, comprising:

passing coolant through the proton-conducting membrane from the anode compartment into the cathode compartment;

evaporating the coolant passing into the cathode compartment, whereby the evaporation of the water cools the coolant/fuel mixture in the anode compartment; and

setting and maintaining a desired operating temperature in said fuel cell system by ~~adjusting at least one of a flow rate of the liquid coolant/fuel mixture, and pressure in the cathode compartment~~ varying a rate at which said coolant evaporates in said cathode compartment;

wherein said varying of said rate at which coolant evaporates in said cathode compartment is performed by adjusting at least one of a flow rate of the liquid coolant/fuel mixture, and pressure in said cathode compartment.

24. (New) The fuel cell system according to claim 10, further comprising:

5) a subsidiary branch of the anode offtake, which splits off from said anode offtake, and is connected to said gas separator; and

6) a holding and purification tank disposed in said subsidiary branch, upstream of said gas separator.